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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/048,129	04/05/2002	Thomas L. Larsen	BGR-017PCT/US	2848

7590 12/19/2003

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EXAMINER	
PATEL, NIHIR B	

ART UNIT	PAPER NUMBER
3743	11

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/048,129	Applicant(s) LARSEN ET AL.	
	Examiner Nihir Patel	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *September 29th, 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-82* is/are pending in the application.

4a) Of the above claim(s) *1-38,59 and 81* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-56,60-78 and 82* is/are rejected.

7)☒ Claim(s) *57,58,79 and 80* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Applicant's election with traverse of figure 8 (claims 39-58, 60-80, and 82) in Paper No. 9 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 39 is rejected under 35 U.S.C. 102(b) as being anticipated by Ruhe et al. US Patent No. 3,916,990. Ruhe discloses a gas turbine regenerator that comprises a plurality of longitudinally continuous, sleeve-shaped baffle structures, each baffle structure comprises at least a paired set of fluid flow apertures which constitute the only upstream to downstream fluid passage through the fluid flow contouring apparatus, each of the baffle structures substantially symmetrically surrounding a heat transfer conduit to define an annular shaped fluid flow region thereby isolating cross-wise fluid flow around the associated heat transfer conduit from cross-wise fluid flow around adjacent heat transfer conduits located transversely to the direction of fluid flow, and wherein the fluid flow apertures of a baffle structure are symmetrically located respectively upstream and downstream of the associated heat transfer conduit in at least partial upstream and downstream alignment with each other and with the associated heat transfer conduit, whereby each baffle structure contours the flow path of the process fluid flow to establish a substantially uniform fluid flow pattern around the contour of the associated heat transfer conduit (see figures 1 and 4).

Referring to claim 40, Ruhe discloses an apparatus wherein the heat transfer conduits comprise an array of cylindrical heat transfer conduits oriented to have parallel axes (see figures 1 and 4).

Referring to claim 41, Ruhe discloses an apparatus wherein each baffle structure comprises a sleeve-shaped element which is substantially concentric relative to the associated heat transfer conduit (see figure 4).

Referring to claim 42, Ruhe discloses an apparatus wherein the paired set of fluid flow apertures comprise upstream and downstream apertures in the sleeve shaped elements (see figure 4).

Referring to claim 43, Ruhe discloses an apparatus wherein at least two of the baffle structures are interconnected into a larger flow contouring apparatus for contouring apparatus for contouring fluid flow around a plurality of heat transfer conduits (see figures 1 and 4).

Referring to claim 44, Ruhe discloses an apparatus wherein the heat transfer conduits are arranged in a generally circular array (see figures 1 and 4).

Referring to claim 45, Ruhe discloses an apparatus wherein the individual baffle structures associated with the heat transfer conduits are interconnected to form a larger cylindrical-shaped flow contouring apparatus (see figure 1).

Referring to claim 46, Ruhe discloses an apparatus wherein pairs of fluid flow apertures comprise radially-aligned upstream and downstream apertures in the individual baffle structures (see figures 1 and 4).

Referring to claim 47, Ruhe discloses an apparatus wherein pairs of fluid flow apertures comprise upstream and downstream apertures in the individual baffle structures which are offset from the radial line (see figures 1 and 4).

Referring to claim 48, Ruhe discloses an apparatus wherein the heat transfer conduits comprise at least one generally circular array of axially aligned cylindrical heat transfer conduits, at least some which are substantially surrounded by a substantially concentric apertured sleeve-shaped structure having upstream and downstream aperture pairs in columns parallel to the axis of the associated conduit, further wherein a sleeve-shaped structure is secured by plate a plate member to an adjacent sleeve-shaped structure to form a larger cylindrical structure (see figures 1 and 4).

Referring to claim 49, Ruhe discloses an apparatus wherein the aperture pairs comprise elongated slots, each slot having a long axis generally parallel to the axes of the heat transfer conduit (see figures 1 and 4).

Referring to claim 50, Ruhe discloses an apparatus wherein pairs of elongated slots are in radial alignment (see figure 4).

Referring to claim 51, Ruhe discloses an apparatus wherein a heat transfer conduit is associated with two pairs of elongated slots, each slot pair being offset from radial alignment with the axis of the larger cylindrical structure (see figure 1).

Referring to claim 52, Ruhe discloses an apparatus wherein the two upstream and the two downstream elongated slots associated with each heat transfer conduit are axially offset from one another but axially aligned with the opposite pair of member (see figure 4).

Referring to claim 53, Ruhe discloses an apparatus wherein the heat transfer conduits comprise at least two generally circular arrays of cylindrical heat transfer conduits oriented to have parallel axes, one array being concentric relative to the other (see figures 1 and 4).

Referring to claim 54, Ruhe discloses an apparatus wherein the aperture pairs comprise elongated slots in radial alignment, each slot having a long axis generally parallel to the axes of the heat transfer conduits (see figures 1 and 4).

Referring to claim 55, Ruhe discloses an apparatus wherein the baffle structure of adjacent pairs of radially-aligned heat transfer conduits are interconnected such that an aperture between the baffle structure serves as the downstream fluid flow aperture for one of the conduits and the upstream fluid flow aperture for the other (see figures 1 and 4).

Referring to claim 56, Ruhe discloses an apparatus wherein the aperture pairs comprise elongated slots in radial alignment, each slot having a long axis generally parallel to the axes of the heat transfer conduits (see figures 1 and 4).

Referring to claim 60, Ruhe discloses an apparatus wherein the baffle structure associated with a heat transfer conduit comprises contoured plate members positioned in pairs alongside two sides of the heat transfer conduit in proximity to without touching the surface of the conduit, the plate members having a contour corresponding respectively to the two sides of the heat transfer conduit so as to define generally annular-shaped fluid flow regions having upstream and downstream openings around the heat transfer conduits, the plate members being joined to other plate members associated with adjacent heat transfer conduits (see figures 1 and 4).

Referring to claim 61, Ruhe discloses an apparatus that comprises the steps of preferentially contouring cross-wise fluid flow across the heat exchange conduits by flowing the

fluid through at least a paired set of fluid flow constrictors in a longitudinally continuous, sleeve-shaped baffle structure associated with a heat exchange conduit, the baffle structure being part of an array of such baffle structures, each of which substantially symmetrically surrounds its associated heat exchange conduits to isolate cross-wise fluid flow around that associated heat exchange conduit from cross-wise fluid flow around adjacent heat exchange conduits located transversely to the direction of fluid flow, wherein the fluid flow constrictors of each baffle structure constitute the only upstream to downstream fluid passage through the baffle structure array and are symmetrically located respectively upstream and downstream of the associated heat exchange surface in at least partial upstream and downstream alignment with each other and with the associated heat exchange conduit, and whereby each baffle structure contours the flow path of the fluid to establish a substantially uniform fluid flow pattern around the contour of the associated heat exchange conduit (see figures 1 through 4).

Referring to claim 62, Ruhe discloses an apparatus wherein the heat exchange conduits comprise an array of cylindrical heat exchange conduits oriented to have parallel axes (see figures 1 and 4).

Referring to claim 63, Ruhe discloses an apparatus wherein each baffle structure comprises a sleeve-shaped element which is substantially concentric relative to the associated heat exchange conduits (see figure 4).

Referring to claim 64, Ruhe discloses an apparatus wherein the paired sets of fluid flow constrictors comprise upstream and downstream apertures in the sleeve-shaped elements (see figures 1 and 4).

Referring to claim 65, Ruhe discloses an apparatus wherein at least two of the baffles structures are interconnected into a larger flow contouring apparatus for contouring fluid flow around a plurality of heat exchange conduits (see figure 4).

Referring to claim 66, Ruhe discloses an apparatus wherein heat exchange conduits are arranged in a generally circular array (see figure 1 and 4).

Referring to claim 67, Ruhe discloses an apparatus wherein the individual baffle structures associated with the heat exchange conduits are interconnected to form a larger, cylindrical-shaped flow contouring apparatus (see figures 1 and 4).

Referring to claim 68, Ruhe discloses an apparatus wherein pairs of fluid flow constrictors comprise radially-aligned upstream and downstream apertures in the individual baffle structures (see figures 1 and 4).

Referring to claim 69, Ruhe discloses an apparatus wherein pairs of fluid flow constrictors comprise upstream and downstream apertures in the individual baffle structures which are offset from the radial line (see figure 4).

Referring to claim 70, Ruhe discloses an apparatus wherein the heat exchange conduits comprise at least one generally circular array of axially aligned cylindrical heat exchange conduits, at least some of which are substantially surrounded by a substantially concentric apertured sleeve-shaped structure having upstream and downstream aperture pairs in columns parallel to the axis of the associated conduit, further wherein a sleeve-shaped structure is secured by a plate member to an adjacent sleeve-shaped structure to form a larger cylindrical structure (see figures 1 and 4).

Referring to claim 71, Ruhe discloses an apparatus wherein the aperture pairs comprise elongated slots, each slot having a long axis generally parallel to the axes of the heat exchange conduits (see figure 4).

Referring to claim 72, Ruhe discloses an apparatus wherein pairs of elongated slots are in radial alignment (see figures 1 and 4).

Referring to claim 73, Ruhe discloses an apparatus wherein a heat exchange conduit is associated with two pairs of elongated slots, each slot pair being offset from radial alignment with the axis of the larger cylindrical structure (see figure 4).

Referring to claim 74, Ruhe discloses an apparatus wherein the two upstream and the two downstream elongated slots associated with each heat exchange conduit are axially offset from one another but axially aligned with the opposite member (see figure 4).

Referring to claim 75, Ruhe discloses an apparatus wherein the heat exchange conduits comprise at least two generally circular arrays of cylindrical heat exchange conduits oriented to have parallel axes, one array being concentric relative to the other (see figures 1 and 4).

Referring to claim 76, Ruhe discloses an apparatus wherein the aperture pairs comprise elongated slots in radial alignment, each slot having a long axis generally parallel to the axes of the heat exchange conduits (see figure 1 and 4).

Referring to claim 77, Ruhe discloses an apparatus wherein the baffle structures of adjacent pairs of radially-aligned heat exchange conduits are interconnected such that an aperture between the baffle structure serves s the downstream fluid flow constrictor for one of the conduits and the upstream fluid flow constrictor for the other (see figure 1).

Referring to claim 78, Ruhe discloses an apparatus wherein the aperture pairs comprise elongated slots in radial alignment, each slot having a long axis generally parallel to the axes of the heat exchange conduits (see figures 1 and 4).

Referring to claim 82, Ruhe discloses an apparatus wherein the baffle structure associated with a heat exchange conduit comprises contoured plate members positioned in pairs alongside two sides of the heat exchange conduits in proximity to without touching the surface, the plate members having contour corresponding respectively to the two sides of the heat exchange conduit so as to define generally annular-shaped fluid flow regions having upstream and downstream openings around the heat exchange conduits, the plate members being joined to other plate members associated with adjacent heat exchange conduits (see figure 1 and 4).

Allowable Subject Matter

3. Claims 57, 58, 79, and 80 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Nihir Patel whose telephone number is (703) 306-3463. The examiner can normally be reached on Monday-Friday from 7:30am to 4:30pm. If attempts to reach the examiner by telephone are unsuccessful the examiner's supervisor Henry Bennett can be reached at (703) 308-0101.

NP
December 15, 2003

AU 3743